

FINAL WORK PLAN

TIME CRITICAL REMOVAL ACTION

**STOCKPILE B
IR SITE 9
NAVAL BASE VENTURA COUNTY
CONSTRUCTION BATTALION CENTER
PORT HUENEME, CALIFORNIA**

Prepared for:



**U.S. DEPARTMENT OF THE NAVY
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**ENVIRONMENTAL MULTIPLE AWARD CONTRACT (EMAC)
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Prepared by:



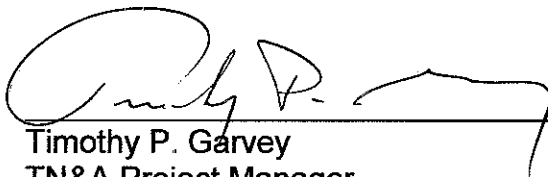
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September 2004

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Acronyms and Abbreviations

AM	Action Memorandum
CAM	California Assessment Manual
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CBC	Construction Battalion Center
COC	contaminant of concern
COPC	contaminant of potential concern
CQC	Construction Quality Control
CTO	Contract Task Order
c.y.	cubic yards
DQOs	Data Quality Objectives
DRO	Diesel Range Organics
DTSC	Cal EPA Department of Toxic Substances Control
EMAC	Environmental Multiple Award Contracts
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
HAZWOPER	Hazardous Waste Operations and Emergency
HASP	Health and Safety Plan
IR	Installation Restoration Program
LARWQCB	Los Angeles Regional Water Quality Control Board
NAVD	North American Vertical Datum
NFECSSW	Naval Facilities Engineering Command, Southwest Division
NBVC	Navy Base Ventura County
NPL	National Priority List
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
POC	point of contact
PPE	personal protection equipment
PRG	preliminary remediation goal
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
RAOs	remedial action objectives
ROD	record of decision
SAP	Sampling and Analysis Plan
SOW	Scope of Work
SSHO	Site Safety and Health Officer
STLC	Soluble Threshold Limit Concentration
SVOC	semivolatile organic compound
TtEMI	Tetra Tech EM, Inc.
TCRA	time critical removal action
TN&A	T N & Associates, Inc.
TPH	total petroleum hydrocarbon
TTLC	Total Threshold Concentration Limit
VOC	volatile organic compounds
WCE	West Coast Environmental and Engineering

1.0 INTRODUCTION

This Work Plan summarizes the approach and rationale proposed for the *time critical* removal of approximately 9,000 cubic yards (c.y.) of contaminated soil from Stockpile B, Installation Restoration (IR) Program Site 9 at Naval Base Ventura County (NBVC), Construction Battalion Center (CBC), Port Hueneme, in Port Hueneme, California. This Work Plan was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and prepared by T N & Associates (TN&A), in accordance with Contract Task Order (CTO)-0002 issued by the Department of the Navy, Southwest Division Naval Facilities Engineering Command, under the Environmental Multiple Award Contracts (EMAC), Contract No. N68711-01-D-6005.

As a time critical removal action (TCRA) work plan, this document is abbreviated and makes reference to the Time Critical Action Memorandum (AM) [Tetra Tech EM, Inc. (TtEMI), June 2004], Scope of Work (SOW) provided by the Navy, the Final Sampling and Analysis Plan (SAP) (TN&A, August 2004a) and Final Health and Safety Plan (HASP) [TN&A, September 2004b]. All work shall be performed in accordance with the SOW and Site Health and Safety Plan. All sampling and analysis shall be performed in accordance with the SAP, which is comprised of the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP).

1.1 PROJECT PURPOSE AND SCOPE

The purpose of the TCRA at Stockpile B is to eliminate the potential for migration of the contaminants identified in site soil and to eliminate the potential for exposure to contaminated soil. The chemicals of concern (COCs) have been previously identified in the Time Critical AM and include: polychlorinated biphenyls (PCBs), and the metals arsenic, cadmium, chromium (total) copper, and lead. The chemicals of potential concern (COPCs), identified during previous investigations and discussed in Section 2.0, and include: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, total petroleum hydrocarbons - diesel range organics (TPH-DROs), and additional metals.

The project scope includes excavation of approximately 9,000 c.y. of contaminated soil identified as Stockpile B. It is estimated that approximately half of Stockpile B exists above the existing ground surface and half exists below ground surface (bgs). The below grade portion is reported to end at approximately four feet bgs and lie above the locally perched water table.

The soil excavated from the Stockpile B location will be properly manifested and transported in accordance with U.S. Environmental Protection Agency (EPA) and U.S. Department of Transportation requirements and disposed at waste Management's Class I waste disposal facility at Kettleman Hills, CA.

Confirmation sampling will be performed in a triangular grid pattern along the excavation floor and sidewalls to document removal of all contaminated soil. A discussion of sampling activities, including details of locations and analyses, is presented in the SAP (TN&A, August 2004a).

The Stockpile B location will be backfilled with clean soil and compacted in accordance with the Port Hueneme Public Works Department specifications.

1.2 PROJECT ORGANIZATION AND PERSONNEL

This Work Plan is organized to present an overview of the project (Section 1), background information (Section 2), the project approach (Section 3), the Quality Assurance (QA) program (Section 4), and references cited (Section 5).

There are two documents that have been prepared to accompany this Work Plan. The first is the SAP for IR Sites 9 (TN&A, August 2004a), which provides details regarding the collection, analysis, and reporting of analytical data. The SAP consists of the FSP and the QAPP. The second document is the HASP for IR Sites 9 and 14 and UST Sites 02 and 796-4 (TN&A, September 2004b). In the interest of brevity and eliminating duplicate discussions, the reader will be directed to the SAP and HASP for details pertinent to those documents.

The project organization will ensure that all project objectives will be met in a timely, cost-effective manner. The following is a list of key project personnel, their titles, and contact information.

Table 1 – Key Personnel

Name	Organization/Role	Contact Info.
Michael Gonzales	SWDIV Remedial Project Manager	(619) 532-3178 Michael.J.Gonzales@navy.mil
Steven Granade	NBVC Activity Point of Contact	(805) 989-3806 steve.granade@navy.mil
Reza Ghanei	NBVC Activity Point of Contact	(805) 989-3556 reza.ghanei@navy.mil
Tim Garvey	TN&A Project Manager	(805) 585-6386 tgarvey@tnainc.com
John Wingate	TN&A Remedial Construction Manager and Lead Engineer	(805) 585-6389 jwingate@tnainc.com
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Thomas Rowell	TN&A Lead Environmental Technician and Field H&S Manager	(805) 585-6381 trowell@tnainc.com
Dave Klein	TN&A Construction Quality Control (CQC) Manager and Field Sampling Manager	(805) 431-1416 dklein@tnainc.com
Maura Browning	TN&A Waste Management and Coordination	(805) 585-6390 mbrowning@tnainc.com
Anna Espinosa	TN&A Procurement and Cost Tracking/Control	(805) 585-6387 aespinoza@tnainc.com
Jacques Marcillac, RG	TN&A Project Geologist	(805) 585-6382 jmarcillac@tnainc.com

1.3 TIME CRITICAL REMOVAL ACTION OBJECTIVES

The primary objective is to remove an estimated 9,000 c.y. (in-situ) of contaminated soil from Stockpile B, at IR Site 9. Confirmation sampling will be performed to document that all soil remaining after excavation meets the Remedial Action Objectives (RAOs). The RAOs for the COCs have been previously defined in the Time Critical AM as:

- EPA Region 9 industrial Preliminary Remediation Goals (PRGs) for the metals arsenic, cadmium, chromium (total), copper, and lead. [for analyte list and PRG levels refer to Appendix D of the SAP (TN&A, August 2004a)].
- Navy clean-up level of 1.0 mg/kg for PCBs [Department of Toxic Substances Control (DTSC), 2004]

The DTSC concurred with the Navy clean-up goal of 1.0 mg/kg for PCBs in a letter dated July 8th, 2004 (DTSC, 2004). This clean-up goal is based on the previous remedial actions at NBVC and since the site future use is anticipated for industrial purposes only.

Confirmation samples will be collected for both COCs and COPCs (discussed in Section 1.1) within the context of the Data Quality Objectives (DQOs) to assure the collected data are of sufficient quality to support their intended uses for determining whether RAOs have been met and for risk management decisions. The DQOs for the confirmation sampling at Stockpile B are presented in Table 3 of the SAP.

Residual concentrations of chemicals in soil from confirmation samples will be evaluated with respect to the RAOs and the residential PRGs. Completion of the removal action will be defined by achievement of confirmation sample results that are less than industrial PRGs and the Navy cleanup level of 1.0 mg/kg for PCBs. If the analytical results for the confirmation samples are less than industrial PRGs but greater than residential PRGs, the record of decision (ROD) for the site will include institutional mechanisms for maintenance of industrial land use. If confirmation sample results are less than residential PRGs, the ROD will include no restrictions for future land use. In the event that cleanup goals are not achieved, the need for further action will be evaluated through risk management decisions that consider alternative cleanup goals. Alternative cleanup goals would be within the acceptable risk range of 1×10^{-4} to 1×10^{-6} and be consistent with regulations and regulatory guidance.

In addition, when residential or unrestricted land usage is not achieved, institutional controls will be implemented to adhere to the California Military Environmental Coordination Committee protocols of May 5, 1998 and the 5-year review report will be subject to the regulatory agencies review, comment and concurrence.

2.0 PROJECT BACKGROUND

2.1 BASE DESCRIPTION

CBC Port Hueneme is located in Port Hueneme, Ventura County, California approximately 60 miles northwest of Los Angeles. CBC Port Hueneme is bordered by the Pacific Ocean to the

west and by residential neighborhoods of Oxnard and, Port Hueneme to the north, south and east, respectively. Figure 1 shows the location of CBC Port Hueneme. Public access to CBC Port Hueneme is restricted by fencing and guarded security entrance points.

CBC Port Hueneme was established in 1942 to meet military needs during World War II and encompasses 1,615 acres of land. CBC Port Hueneme provides local and worldwide military and technical training, outfits Naval Mobile Construction Battalions and Seabee teams, operates supply and administrative services, and provides logistical support in the deployment of the Naval Construction Force. In October 2000, as part of the reorganization of Ventura County's naval bases, Port Hueneme Naval Construction Battalion Center and Naval Air Weapons Station Point Mugu were consolidated under the name Naval Base Ventura County.

The harbor occupies approximately 80 acres and is used for both commercial and naval activities. The Base consists of approximately 750 buildings and supports a work force of over 10,000 individuals. CBC Port Hueneme hosts a variety of tenants and lessees such as the Civil Engineer Corps Officers School and Mazda Motor of America. The Oxnard Harbor District encompasses approximately 22 acres of land on the southeast side of Hueneme Harbor.

2.2 SITE DESCRIPTION

Stockpile B is located at the southern side of IR Site 9 in the western portion of the CBC Port Hueneme (Figure 2). Access to Site 9 is restricted by a locked metal chain link fence that surrounds the perimeter. Stockpile B is an irregular tear-shaped earthen mound approximately 350 feet long by 100 feet wide with a maximum height of 12 feet above grade (Time Critical AM, TtEMI, June 2004) (Figure 3). Elevation of the stockpile is highest along the southern edge and tapers to ground level along the northern edge, in a wedge shape.

IR Site 9 is not developed or currently in use. IR Site 9 is bound by Lehman Road to the south and Pennsylvania Road to the east. A drainage ditch runs along the northern perimeter at the base of the northern berm. North of the drainage ditch is a vacant parcel and railroad spur. To the west, a vacant lot is located adjacent to the site's west side.

2.3 SITE HISTORY

IR Site 9 has been used to process waste generated on the Navy base. From the 1950s to the late 1960s, wastes and trash including small amounts of hazardous wastes were incinerated at the site. From 1970 to 1994, the subject site was used as a solid waste transfer station. During this time period, wood pallets, scrap metal and paper were removed periodically by a waste contractor. Paper trash was buried onsite. Domestic trash and hazardous waste materials were not accepted on site. For a short time from 1985 to 1987, the northeast corner of IR Site 9 was used as a fire fighting training area. Diesel, gasoline and other petroleum products were used as combustibles. Wastewater generated by these activities was contained in an unlined earthen pit that was drained by a disposal contractor and removed from the site. From 1994 to the present, the site has been idle.

IR Site 9 has been investigated as having potential historic releases that are not specifically related to a treatment, storage, and disposal facility and will be addressed with respect to CERCLA protocols. The TCRA at Stockpile B is being performed under the Navy IR program.

2.4 ENVIRONMENTAL SETTING

The subject site is located in the southwestern portion of the Ventura Basin on the Oxnard Plain. The Ventura Basin is a relatively broad and level flood plain and river delta formed by the Santa Clara River. The Ventura Basin is bounded on the north and northwest by the Santa Ynez Mountains, to the south and east by the Santa Monica Mountains, and to the southwest by the Pacific Ocean and Channel Islands Harbor.

The subject site is located in a relatively flat lying region, with little surrounding topographic relief. According to the USGS 7.5 Minute Topographic map of the Oxnard Quadrangle, the subject site is located at an elevation of 13 feet above mean sea level. Based on review of the topographic map, groundwater at the site is expected to migrate generally southerly in the vicinity of IR Site 9 (WCE, September 2003).

The basins of the Oxnard plain are filled with sediments deposited on a wide delta complex that formed at the terminus of the Santa Clara River. The upper most sediments consist of silt and clay deposits that are overlain by sand layers of the "semi-perched" zone. The semi-perched zone extends from the surface to no more than 100 ft in depth. [West Coast Environmental and Engineering (WCE), September 2003]. The depth to groundwater is expected to be encountered less than 10 feet bgs in the shallow perched groundwater (semi-perched aquifer zone).

The semi-perched aquifer zone in the Oxnard area is sometimes impacted by human activities and activities associated with the historical agricultural cultivation. According to the United Water Conservation District, *Surface and Ground Water Conditions Report*, 1999, on the Oxnard Plain, the "semi-perched" zone generally contains water of poor quality and is not used for water supply on the Oxnard Plain. In spite of these potential impacts, the Los Angeles Regional Water Quality Control Board (LARWQCB) has designated existing, and potential municipal, industrial and agricultural beneficial uses for the shallow perched aquifers on the Oxnard Plain (WCE, September 2003).

The confining clay of the upper Oxnard aquifer generally protects the underlying aquifers from contamination from surface land uses. Deep percolation of rainfall and irrigation return flows are the major components of recharges to the semi-perched zone (WCE, September 2003).

The nearest residential development is located off-base, approximately 700 feet to the west-southwest. The predominant wind direction is from the west as reported at Oxnard Airport, located approximately 3.0 miles north of IR Site 9.
(<http://www.poletopole.org/station.php?stationid=KOXR>)

The NBVC Project Review Board performed a National Environmental Policy Act review of the proposed TCRA at Site 9 and classified the Site as falling under Categorical Exclusion 04-107. The Project Review Board determined that the proposed action at Site 9 will not have any effect on wetlands, endangered or threatened species, and historical, cultural, or archeological

resources. (NBVC Project Review Board, August 16, 2004.)

2.5 PREVIOUS INVESTIGATIONS

A list of environmental investigations that have been performed at IR Site 9 are as follows:

Initial Assessment Study (SCS and Landau Associates, 1985)

- Site Inspection (ERTEC, 1991)
- Hazardous Materials Survey and Site Assessment (Fugro-McClelland, 1991)
- Results of Field Sampling, Parcel 15 IR Site 9 (WCE, July 2003)
- Limited Soil Sampling Assessment, Stockpile B Parcel 15 IR Site 9 (WCE, September 2003).

The last two referenced investigations, *Results of Field Sampling Parcel 15, Site 9* and *Limited Soil Sampling Assessment*, documented the analytical results of samples collected from Stockpile B and are therefore pertinent to the proposed TCRA. Summaries of these two reports are included below.

In the *Results of Field Sampling Parcel 15, Site 9* (WEC, 2003), seven soil samples were collected from borings ranging in depth from 1-foot to 9-feet bgs (Figure 3). The soil samples were analyzed for VOCs, SVOCs, TPH (diesel range), pesticides, PCBs, and metals, in follow-up to previous sampling efforts and potential contaminants of concern at IR Site 9.

The analytical results summary is as follows:

- The analytical results showed no concentrations of VOCs, SVOCs, or pesticides that exceeded the U.S. EPA Region 9 PRGs (residential).
- Two samples, B2-5 and B6-3, had minor exceedances of the LARWQCB Interim Site Assessment and Cleanup Guidebook, May 1996 (LARWQCB – May 1996) soil screening levels for TPH (diesel range).
- Three of the samples had exceedances of PRGs (residential) for PCBs. The maximum PCB concentration detected was 2.1 mg/kg which is less than the Total Threshold Concentration Limit (TTLC) and less than 10 times the Soluble Threshold Limit Concentration (STLC), and therefore not potentially hazardous.
- One sample, B7-1, had exceedances of PRGs (residential) for the metals lead and zinc. The STLC test was run on sample B7-1 for lead, zinc, and cadmium and concentrations of lead (11 mg/L) were detected above the STLC limit of 5 mg/L.

In the *Limited Soil Sampling Assessment* (WCE, 2003), three trenches were dug through Stockpile B and 3 composite and 12 grab samples were collected and analyzed for SVOCs, TPH, PCBs, and metals (Figure 3). The three composite samples were collected to represent average soil in Trenches 1, 2, and 3. The twelve grab samples were collected from various depths to target potentially contaminated soil located along the sidewalls of the three trenches. The analytical results summary is as follows:

- There were no detected PCBs and only two detections of SVOCs at concentrations below the PRGs (residential).

- TPH was detected in the Trench 3 composite sample and in two of the Trench 1 grab samples at concentrations that exceeded the LARWQCB soil screening levels for TPH (diesel range).
- The metals cadmium (sample S2-EX1), chromium (samples S1-EX3, S2-EX1, and S3-EX1), copper (samples S1-EX3, S2-EX1, and S3-EX1), lead (samples S1-S1, S1-EX1, S1-EX3, S2-S1, S2-S2, and S3-EX2), and zinc (samples S1-S1, S1-EX3, and S2-S2) were detected at concentrations that exceeded the PRGs (residential).
- The STLC test was run for metals and cadmium (sample S2-EX1), copper (samples S1-S1, S1-EX3, S2-EX1, and S3-EX1) and lead (samples S1-S1, S1-EX1, S1-EX3, and S3-EX2), and zinc (samples S1-S1, S1-EX3, and S2-S2) were detected at concentrations that exceeded the STLC limits.

2.6 DISPOSAL CHARACTERIZATION OF STOCKPILE B

There is no regulatory guidance pertaining to the number of disposal samples required for disposal characterization; however, if Stockpile B were to be used as "clean" fill then it would be subject to the Cal EPA Department of Toxic Substances Control (DTSC) guidance for sampling fill material (DTSC, October 2001). For volumes greater than 5,000 c.y., 12 samples are recommended for the first 5,000 c.y. plus 1 additional sample for each additional 1,000 c.y. Stockpile B is estimated to be 9,000 c.y. so 16 samples would be recommended for collection. There were a total of 22 analytical samples (19 grab soil samples and 3 composite soil samples) collected from a wide range of depths at Stockpile B. Based on the number of samples collected, their spatial relationships, and presumed history of mixing of Stockpile B over the years, the numbers of samples are considered adequate to characterize Stockpile B for disposal.

The conclusions from the previous investigations indicate that VOCs, SVOCs, pesticides, and PCBs were all detected at non-hazardous concentrations; i.e. below the TTLC concentration and below 10 times the STLC concentration. One or more metals, including copper, cadmium, lead, and/or zinc, were detected in 8 of the 22 samples at concentrations that exceeded the STLC limits, indicating State hazardous waste at those locations. These analytical result and those for TPH will be submitted to Waste Management's Class I disposal facility at Kettleman Hills, CA to determine disposal options for Stockpile B that are in accordance with Title 22 of the California Code of Regulations (CCR) and the Comprehensive Environmental Compensation and Liability Act (CERCLA) Off-Site Rule (40 CFR 300.400). Additional samples for disposal characterization may be collected pending review of the existing data by the Waste Management Class I disposal facility.

3.0 DESCRIPTION OF THE WORK TO BE PERFORMED

The following sections describe the plans for the excavating and disposing of Stockpile B. Following excavation, confirmation samples will be collected to document proper removal of all contaminated soil in accordance with the Time Critical AM. The Stockpile B vicinity will be restored to match the surrounding grade in accordance with the Port Hueneme Department of Public Works grading requirements.

3.1 SITE PREPARATION

Site preparation includes all preliminary administrative and operational tasks that will be performed in order to support excavation operations and to comply with Navy, State, and Federal guidance for this TCRA.

A temporary field office/command center will be situated near the east side of Stockpile B, relatively close to the existing water source/fire hydrant. In addition to serving as an operations and communications center, the field office will contain important documentation and signage including components of the health and safety program such as: a decontamination station, area for personal protection equipment (PPE) storage and disposal, a hand wash basin with running water, an eye wash station, toilet facility, and potable water. Documentation contained at the field office will consist of the HASP Plan, the Work Plan, pertinent sections of the SAP, and all permits and applicable site documents. Proper signage will be used to identify the field office and to fulfill the requirements of the Navy, Occupational Safety and Health Administration (OSHA), and CA Proposition 65.

General and Base-specific "Dig Safe" practices will be observed prior to the initiation of work to locate any utilities in the area. The following information sources shall be contacted and all maps/literature resources reviewed:

- Port Hueneme Public Works Department
- Underground service alert (USA) network
- NBVC Utility Outage And Excavation Permit Request (Dig Permit)

In the event potential utilities are identified from the above methods or field reconnaissance, a geophysical survey will be performed to identify (via surface markers) the position of all subsurface utilities within the excavation area. Excavation required within three feet of an active utility will be performed manually with hand tools.

TN&A will establish the "Exclusion Zone," "Contaminant Reduction Zone," and the "Support Zone" in accordance with OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) guidance using temporary fencing or tape. All personnel except those workers and Navy personnel with the proper 40-hour HAZWOPER training and will be excluded from the "Exclusion Zone" and "Contaminant Reduction Zone." TN&A's construction manager will provide oversight of access and egress through these zones and will provide review of the Health and Safety Plan (HASP) with all personnel who work or enter these zones. For more information, please refer to the HASP (TN&A, September 2004b).

Air monitoring for VOCs and fugitive dusts/aerosols will be performed during excavation, loading and decontamination activities to assure compliance with the Navy Approved Health and Safety Plan and to comply with Ventura County Air Pollution Control District Rule 50 (opacity), Rule 51 (nuisance), Rule 53 (particulate matter) and Rule 74.29 (VOCs). Engineering controls, consisting primarily of water spraying (from trucks) will be used to comply with Rules 50, 51, and 53. Operations will be shut down (and a contingency plan put into effect) if an exceedance of Rule 74.29 occurs; which is very unlikely based on existing soil data.

Wind speed will also be measured as an estimate of the potential for the entrainment of dusts following South Coast Air Quality Monitoring District Rule 403.1 (since Ventura County has no written rule). A post mounted anemometer will be positioned to record the maximum wind velocity (away from obstructions) within the site boundary. When the on-site anemometer registers at least two wind gusts in excess of 25 miles per hour within a consecutive 30-minute period then work shall be postponed until winds subside. Wind speeds shall be deemed to be below 25 miles per hour, and work may resume, if there are no recurring wind gust in excess of 25 miles per hour within a consecutive 30-minute period.

An application notifying LARWQCB of the destruction of the groundwater monitoring well located on the south side of Stockpile B will be filed. The well will be excavated and attempts will be made to pull it out in one piece. If it cannot be pulled out, it will be excavated to the greatest extent practicable and backfilled with a bentonite/cement grout. An application for a replacement well permit will also be filed with the LARWQCB. Details regarding the new well installation are provided in Section 3.5 - Site Restoration.

3.2 SOIL EXCAVATION/STAGING/LOADING

Excavation of Stockpile B will be accomplished by a CAT 350 track mounted excavator (or equivalent). The proposed limits of excavation are shown in Figure 3. The excavator will be assisted by a Cat 963B wheeled loader (or equivalent) as needed to maintain a target daily rate of 720 c.y per day. This rate may be adjusted based on field conditions, the amount of foreign debris uncovered, and the availability of hauling vehicles.

It is intended that the above ground portion of Stockpile B will first be leveled, working along east-west rows beginning from the southeast corner of the stockpile and finishing at the northwest corner. A runway for the truck haul route will be simultaneously maintained so that the distance from digging equipment to the waiting truck is minimized.

In the subsurface excavation stage, the loader will work in tandem with the track-mounted excavator. Subsurface excavations are estimated to be performed to approximately 4-feet bgs. The excavator will dig east-west trenches beginning in the northwest corner of the Stockpile B footprint and finishing in the southeast corner of the Stockpile B footprint. Excavated soil will be placed in hedgerows along the south side of the trench where the loader and a truck will be positioned. The tandem work will still allow the trucks immediate access to the digging area to eliminate carry time. This method allows the excavator to focus on below ground digging, and the loader to focus on loading trucks and maintaining the truck runway.

Excavated soil will be moved directly from Stockpile B into waiting trucks so that staging of soil will not be necessary. Trucks will enter Site 9 through the Pennsylvania Road gate and proceed in a counter-clockwise direction around Stockpile B until they reach the loading area. In the event hauling trucks are not immediately available, then temporary soil stockpiles will be placed on the south side of Stockpile B with proper protection such that excavated soils do not come into contact with the ground surface outside of the excavation zone.

A water truck and sprayer will be available on-site and used as-needed for dust suppression and/or to assist with compaction of truck haul routes. Monitoring for fugitive dusts/aerosols will be performed in accordance with the HASP (TN&A, September 2004b) using a mini-RAM (or equivalent). The dust monitoring results and weather conditions shall dictate the frequency of water spraying to control fugitive dusts.

Oversized non-soil debris, including but not limited to concrete, asphalt, wood, metal cable, pipes, and sheet metal, will not be disposed with the excavated soil. Items that are larger than approximately two feet in girth, or unwieldy items such as metal cable, will be placed on the north side of Stockpile B so that they can be recycled or disposed by the Port Hueneme Dept. of Public Works, in accordance with the SOW. The oversized debris shall be stockpiled on top

of a 6-mil plastic liner to maintain separation with from the underlying soil.

Runoff is currently controlled at the site by existing earthen berms that direct all Site runoff towards the center of Site 9. The management of Site 9 storm water is under the auspices of the Port Hueneme Department of Public Works and the planned removal of Stockpile B is not anticipated to affect run-on or runoff patterns.

Preventative equipment maintenance will be performed in the evenings after the daily excavation goal of 720 c.y. have been met and no additional trucks can be filled. These methods are considered the best available for eliminating bottlenecks in the excavation and loading routines.

All open excavations will be marked out with temporary orange fencing at the completion of each day. Refer to the HASP for additional details regarding excavation safety.

3.3 TRANSPORTATION AND DISPOSAL

All excavated materials will be handled by licensed waste haulers, in compliance with applicable laws and regulations. Trucks will be scheduled to arrive and depart through the Victoria Avenue gate at off-peak times. Morning truck arrivals will be scheduled prior to the 0700 – 0830 peak hours and afternoon departures will be scheduled prior to 1530. Coordination of all CBC arrivals will be performed in advance through the Base Security Office and the designated Navy Environmental Coordinator Point of Contact (POC).

It is anticipated that between 40 and 50 end-dump trucks will be required each day during 13 days of excavation, transportation, and disposal. TN&A will work closely with Base Security and the Navy POC to provide briefings and notifications to Port Hueneme gate and transportation personnel regarding the least disruptive options for the disposal operations.

Before trucks depart Site 9 they will drive over a rumble strips contained on a plastic-lined decontamination pad that will be situated between the field office and the Pennsylvania Road gate. The decontamination pad will be constructed of two layers of 6-mil thick visqueen plastic liner. The liner will be covered with approximately two inches of sacrificial soil that will allow vehicle traffic to move over it without tearing the liner. The liner edges will be layered over a 6-inch high soil berm to prevent migration of contamination. TN&A personnel will inspect the vehicle tires for soil and check that covers are properly secured for freeway hauling. Any soil clinging to tires or the truck body will be removed using dry sweeping methods. Since the TCRA is anticipated to take place in late summer when it is dry, it is presumed that sweeping will be adequate. All waste soil generated during truck decontamination will be disposed in the final truckloads. Regular inspection of the truck egress routes will be performed to confirm that soil is not being spread to the roads. Road sweeping will be performed if it is determined that fugitive dust or soil is being generated.

All waste soil from Site 9 will be transported aboard licensed hazardous waste haulers in accordance with the Hazardous Materials Transportation Act requirements of 49 CFR 100-199 and 40 CFR 263.10. All waste soil will be disposed at Waste Management's Class I disposal facility at Kettleman Hills, CA. TN&A will provide management and oversight of the waste

manifesting process in accordance with the U.S. EPA Uniform Hazardous Waste Manifest form 8700-22.

All hazardous waste shipments must be weighed prior to departing Port Hueneme. After departing Site 9, trucks will proceed to the base truck scales which are located at the Defense Reutilization and Marketing Office (DRMO) yard, which is north of the Victoria Road gate on 23rd Avenue. The scales are open daily between 0730 and 1530. The Navy POC will be asked to approve and sign all waste manifests prior to disposal. Signed copies of each waste manifest (one per truck) and the truck's weight ticket will be provided, as an Appendix in the Field Activities Report, to the Navy for final EPA documentation. TN&A will act as a designated contingency plan/emergency coordinator and provide 24-hour contact numbers in the event of an accidental release or spill during transportation.

The trucks will pass no sensitive receptors, only military-industrial operations between IR Site 9 and the DRMO and the DRMO and Victoria Gate. The transportation route to the disposal site consists of well maintained traffic controlled county roads and state highways. Leaving the Base at Victoria Gate, the trucks will proceed north on Victoria Avenue until they access Highway 101 approximately 8 miles north of the Victoria Gate. There are no schools, emergency clinics, or hospitals along the route from Victoria Gate to Highway 101.

3.4 CONFIRMATION SAMPLING

The soil remaining in-place after the excavation is completed will undergo *confirmation sampling* to demonstrate that it meets the RAOs (Section 1.3). All confirmation samples will be stored and shipped on ice in coolers under chain of custody protocol to a CA- and Navy-certified laboratory for analysis. All analytical results will be validated by an independent third party. Soil sampling and analysis will be performed in accordance with the methodology and data quality objectives described in the project SAP (TN&A, August 2004a). Refer to Section 2.0 of the SAP for additional detail regarding sampling at Site 9.

Thirty (30) confirmation soil samples will be collected, analyzed, and the results compared to the RAOs. Sampling locations will be identified by layering an equilateral triangular grid pattern over the area (floor and sidewalls) of the exposed soil following excavation activities. As presented in Figure 4, the proposed grid pattern consists of triangles of approximate dimensions of 44 ft (base) and 20 ft (height). The final dimensions of the grid will depend on the final footprint of the excavation.

The confirmation samples will be analyzed for the COCs and COPCs; i.e., all contaminants that have been historically present at IR Site 9 as documented in *Results of Field Sampling, Parcel 15 IR Site 9 (WCE, July 2003)* and *Limited Soil Sampling Assessment, Stockpile B Parcel 15 IR Site 9 (WCE, September 2003)*. The analyses include: VOCs (EPA Method 8260B), SVOCs (EPA Method 8270C), TPH-DRO (EPA Method 8015M), PCBs (EPA Method 8082), Pesticides (EPA Method 8081), and Title 22 Metals [California Assessment Manual (CAM) 17] (EPA Method 6000/7000).

All endpoint confirmation sample locations, as well as the excavation limits and the replaced well, will be surveyed by a land surveyor, registered in the State of California. The survey shall

be accurate to 0.01 feet vertically and will be surveyed to the North American Vertical Datum (NAVD 88) relative to mean sea level and 0.1 feet horizontally and will be referenced to the State Plane Coordinate System (California Zone 5), North American Datum (NAD 83). Construction stakes will be left at the site to identify all surveyed points.

3.5 SITE RESTORATION

The excavation will remain fenced off, but open, until the confirmation sampling analytical results can be reviewed. If residual contamination is identified, additional attempts to remove it will be performed if within the project scope and budget. The determination to perform a second round of excavation and confirmation sampling will be made by the Navy RPM following review of the analytical results and field data.

Minimal backfilling will be required since the site is raised an average of approximately 4-feet above the surrounding grade and future plans for use of the site as a parking area will result in regrading of IR Site 9 to an average elevation of 2-feet above surrounding grade. Therefore, backfilling activities will be focused mainly towards removing all excavated depressions - to meet health and safety requirements and the Port Hueneme Department of Pubic Works grading requirements. All backfill material that is used will be "certified clean" in accordance with the DTSC's Information Advisory on Clean Imported Fill Material (October 2001).

Backfill consisting of a sandy loam fill or other suitable blend that is easily compactable will be obtained from a local provider. The backfill will not be allowed onsite until TN&A reviews analytical or other documentation that indicates the backfill is "certified clean". The imported soil will be delivered via end-dump truck and spread out with a wheeled loader or dozer using a trailed sheeps-foot roller. Compaction of the backfill will be performed in 1-foot lifts while a water truck sprays the soil to assure the correct moisture content to achieve 90% relative compaction. Compaction testing will be performed to in accordance with the Port Hueneme Department of Pubic Works grading plans for the site.

The monitoring well located on the south side of Stockpile B will be destroyed and removed using the excavator. A replacement well of similar construction materials and design will be installed at the same location following completion of the backfill and compaction process. The final well location and construction will be coordinated with the Navy POC and the TtEMI's personnel currently performing the groundwater monitoring program at IR Site 9.

4.0 PROJECT SCHEDULE

TN&A understands that excavation, backfilling, and restoration activities are to be completed within three months of commencement. An expedited schedule has been developed and will be implemented pending Navy and regulatory agency approval. A Gantt chart (schedule) for the proposed TCRA is provided as Figure 5.

5.0 HEALTH AND SAFETY

All site operations and sampling will adhere to the health and safety policies and procedures set forth in the Draft HASP (TN&A, September 2004b).

All site personnel will have completed the OSHA HAZWOPER 40-Hour training in accordance with 29 Code of Federal Regulations 1910.120(e), and have current 8-Hour Refresher Training Certification. Additionally, each on-site employee must have a baseline and exposure history established through a current medical surveillance program. During the course of this project, any additional personnel brought on-site by the Navy POC or TN&A must comply with the HAZWOPER training and medical surveillance requirements.

Based on the history of contaminant concentrations, it is anticipated that Level D personal protective equipment (PPE), consisting of regular work clothes, steel-toed and steel-shank safety boots, hardhats, safety glasses, hearing protection, and hand protection (as appropriate) will be required. The designated Site Safety and Health Officer (SSHO) will monitor site health and safety and determine if site conditions require an increased level of personnel protection. Personnel will not enter any excavations without proper sloping, shoring, and methods for egress. Monitoring for dusts/aerosols will be performed in accordance with the HASP and both real-time and time weighted average value measurements will be recorded. Dust suppression methods will be utilized as needed and consist primarily of spraying water over dry soil surfaces. These and other health and safety issues are covered in detail in the HASP.

Any observed health and safety related issues, such as a non-compliance or conformance occurrence or incident will be documented by the SSHO and remedied. The corrective action will be documented for future inclusion in the Action Memorandum Report.

6.0 SUBMITTALS

All project activity detail will be documented in a Field Activities Report that will include field forms (e.g. daily activity reports, CQC reports, monitoring forms, etc.), waste manifests, analytical data, survey data, photo documentation, and all information pertinent to the completion of the Scope of Work. The Field Activities Report will be submitted to the Navy in draft, draft final and final format for approval. The Draft Field Activities Report shall be submitted 30 days after the completion of fieldwork and the validation of analytical results.

7.0 REFERENCES

California Environmental Protection Agency, Department of Toxic Substances Control. 2001. Information Advisory on Clean Imported Fill Material. October.

Department of Toxic Substances Control (DTSC). 2004. Letter: Draft Action Memorandum for a Time-Critical Removal Action at IR Site 9 Stockpile B, Dated June 11, 2004, Naval Base Ventura County, Port Hueneme, California". July 8.

Naval Base Ventura County Project Review Board. 2004. National Environmental Policy Act review of the proposed Time-Critical Removal Action at IR Site 9. August 16.

Oxnard Airport Weather Data, Oxnard California, On-line Address:
<http://www.poletopole.org/station.php?stationid=KOXR>

Title 40 of the Code of Federal Regulations 761.61[a][4]). On-line Address: <http://www.epa.gov/earth1r6/6en/a/pcb/03-presentations/overview-pcb-remed-waste-handout5-20.pdf>

T N & Associates, Inc. (TN&A). 2004a. Final Sampling and Analysis Plan, (Field Sampling Plan/Quality Assurance Project Plan) for Time Critical Removal Action for IR Site 9, Construction Battalion Center, Port Hueneme, California. August 18.

T N & Associates, Inc. (TN&A). 2004b. Final Health and Safety Plan for Time Critical Removal Action for IR Site 9, Annual Operation and Maintenance of the IR Site 14 Landfill, Operation of Three Existing Biobarrier Systems for UST 02, and implementation of a Corrective Action Plan for UST 796. Construction Battalion Center, Port Hueneme, California. September.

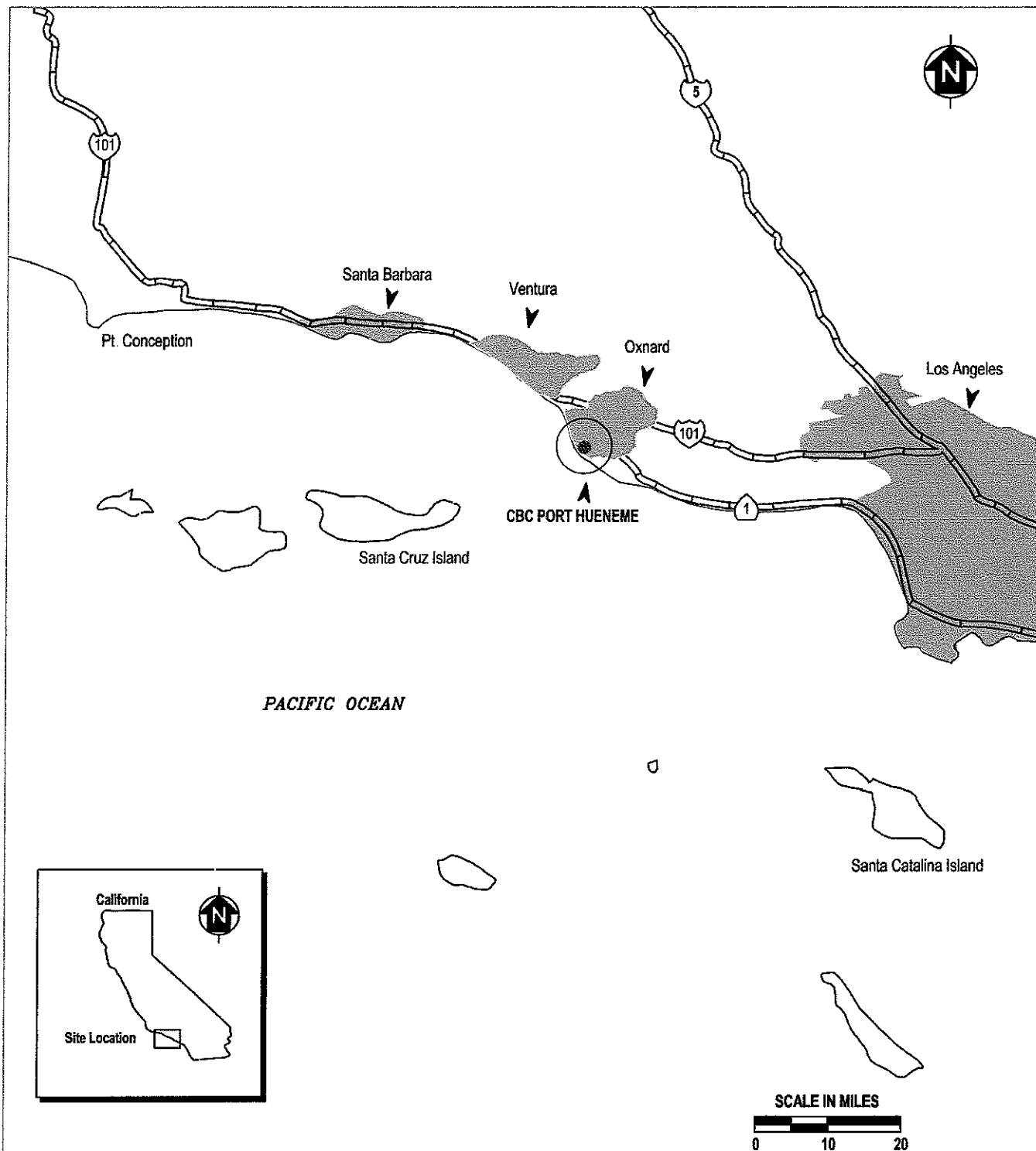
Tetra Tech EM Inc. (TtEMI). 2004. Draft Action Memorandum for a Time Critical Removal Action at IR Site 9 Stockpile B, Naval Base Ventura County, Port Hueneme, CA. June.

U.S. Environmental Protection Agency (EPA). 2002. Region 9 Preliminary Remediation Goals 2002. November. On-line Address: <http://www.epa.gov/region09/waste/sfund/prg/index.htm>

West Coast Environmental and Engineering. 2003. Results of Field Sampling, Parcel 15 IR Site 9, Naval Base Ventura County, Port Hueneme, California. July.

West Coast Environmental and Engineering. 2003. Limited Soil Sampling Assessment, Stockpile B, Parcel 15, IR Site 9, Naval Base Ventura County, Port Hueneme, California. September.

FIGURES



LEGEND



SHADED AREA REPRESENTS
MAJOR POPULATION CENTERS OF
SANTA BARBARA, VENTURA, OXNARD,
AND LOS ANGELES

CONSTRUCTION BATTALION CENTER PORT HUENEME, CALIFORNIA

FIGURE 1 BASE LOCATION MAP

Draft Work Plan - Time Critical Removal Action
Stockpile B, IR Site 9

TN & Associates, Inc.
& A Engineering and Science

Date: 6/16/2004

CHANNEL ISLANDS BOULEVARD



Pleasant Valley Rd Entrance

PLEASANT
VALLEY RD.

INSTALLATION BOUNDARY



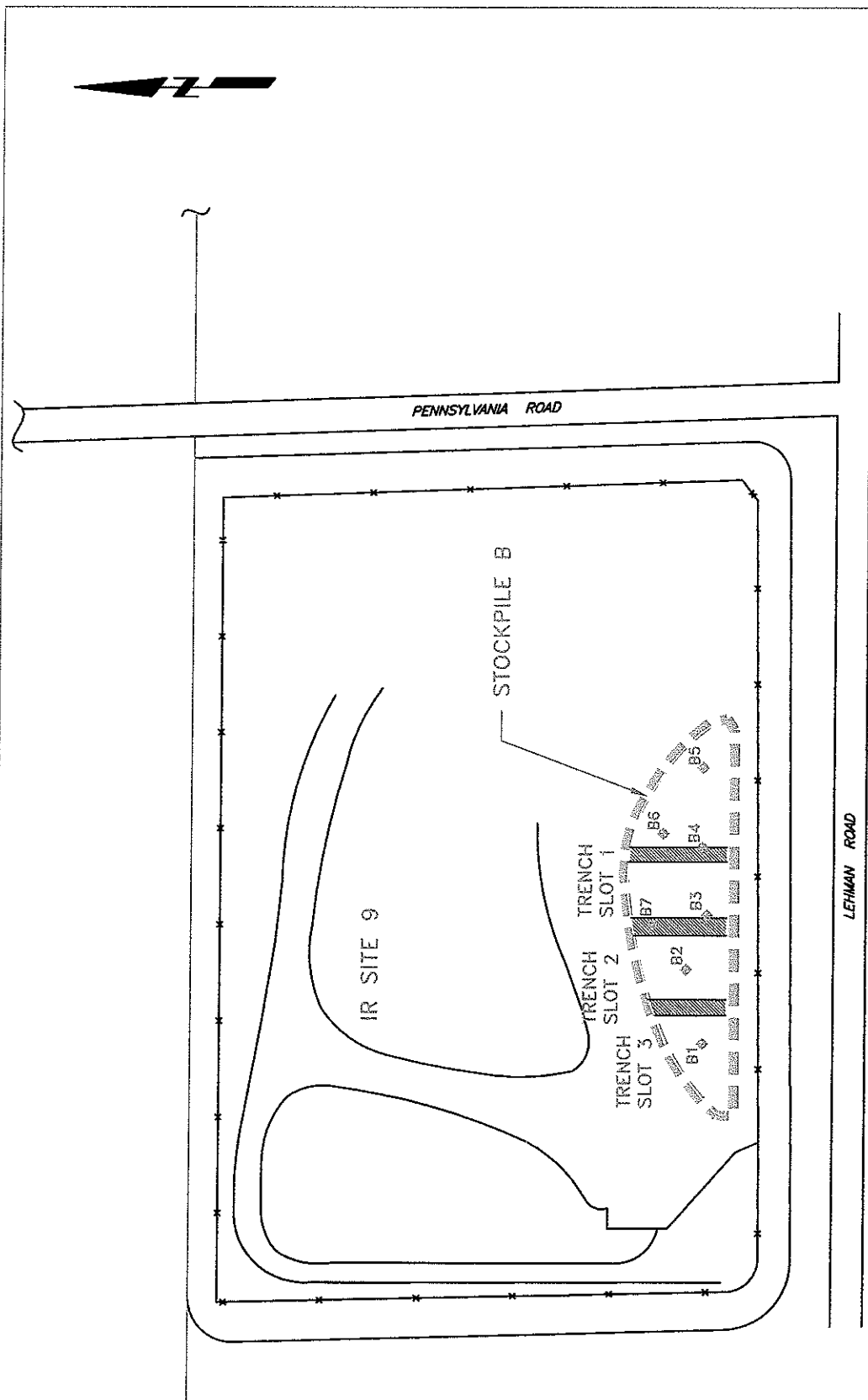
**CONSTRUCTION BATTALION CENTER
PORT HUENEME, CALIFORNIA**

FIGURE 2
SITE LOCATION MAP

**Draft Work Plan - Time Critical Removal Action
Stockpile B, IR Site 9**



DATE: 6/16/2004



LEGEND:

◆ PREVIOUS SOIL BORING

▨ STOCKPILE B BOUNDARY AND PROPOSED LIMITS OF EXCAVATION

—x—x— FENCE

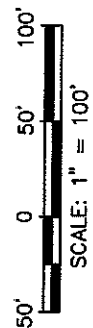
▨ TRENCH SLOT

CONSTRUCTION BATTALION CENTER
PORT HUENEME, CALIFORNIA

FIGURE 3

STOCKPILE B LOCATION MAP

Draft Work Plan - Time Critical Removal Action
Stockpile B, IR Site 9



Source: TetraTech EM Inc. (Draft Action Memorandum, April 2004)

TNT & Associates, Inc.
EA Engineering and Science

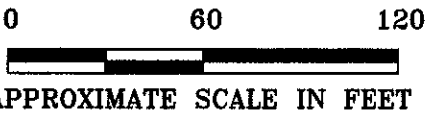
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LEGEND

- PROPOSED LIMITS OF EXCAVATION
- PROPOSED SAMPLING LOCATION
- GROUNDWATER MONITORING WELL TO BE DESTROYED PRIOR TO FIELD WORK AND REPLACED AFTER PROJECT COMPLETION (SEE SECTION 1.1.6)

NOTES:

- TOTAL OF 30 CONFIRMATION SOIL SAMPLES SHALL BE COLLECTED. SAMPLE LOCATIONS WILL BE DETERMINED BY LAYERING OUT AN EQUILATERAL TRIANGULAR GRID PATTERN OVER THE AREA OF THE EXPOSED SOIL (FLOOR AND SIDEWALLS) FOLLOWING EXCAVATION ACTIVITIES. EACH TRIANGLE HAS APPROXIMATE DIMENSIONS OF 44 FT (BASE) AND 20 FT (HEIGHT). THE FINAL DIMENSIONS OF THE GRID WILL DEPEND ON THE FINAL FOOTPRINT OF THE EXCAVATION. FOR DETAILS REFER TO SECTION 2.1.1 OF THE DRAFT SAP (TN&A, 2004).
- CONFIRMATION SOIL SAMPLES WILL BE ANALYZED FOR COCs (VOCs, SVOCs, PESTICIDES, PCBs, TPH-DROs, AND METALS). REFER TO SECTION 1.3.1 OF THE DRAFT SAP FOR DETAILS (TN&A, 2004).



CONSTRUCTION BATTALION CENTER
PORT HUENEME, CALIFORNIA

FIGURE 4
CONFIRMATION SAMPLING LOCATION

Draft Work Plan - Time Critical Removal Action
Stockpile B, IR Site 9

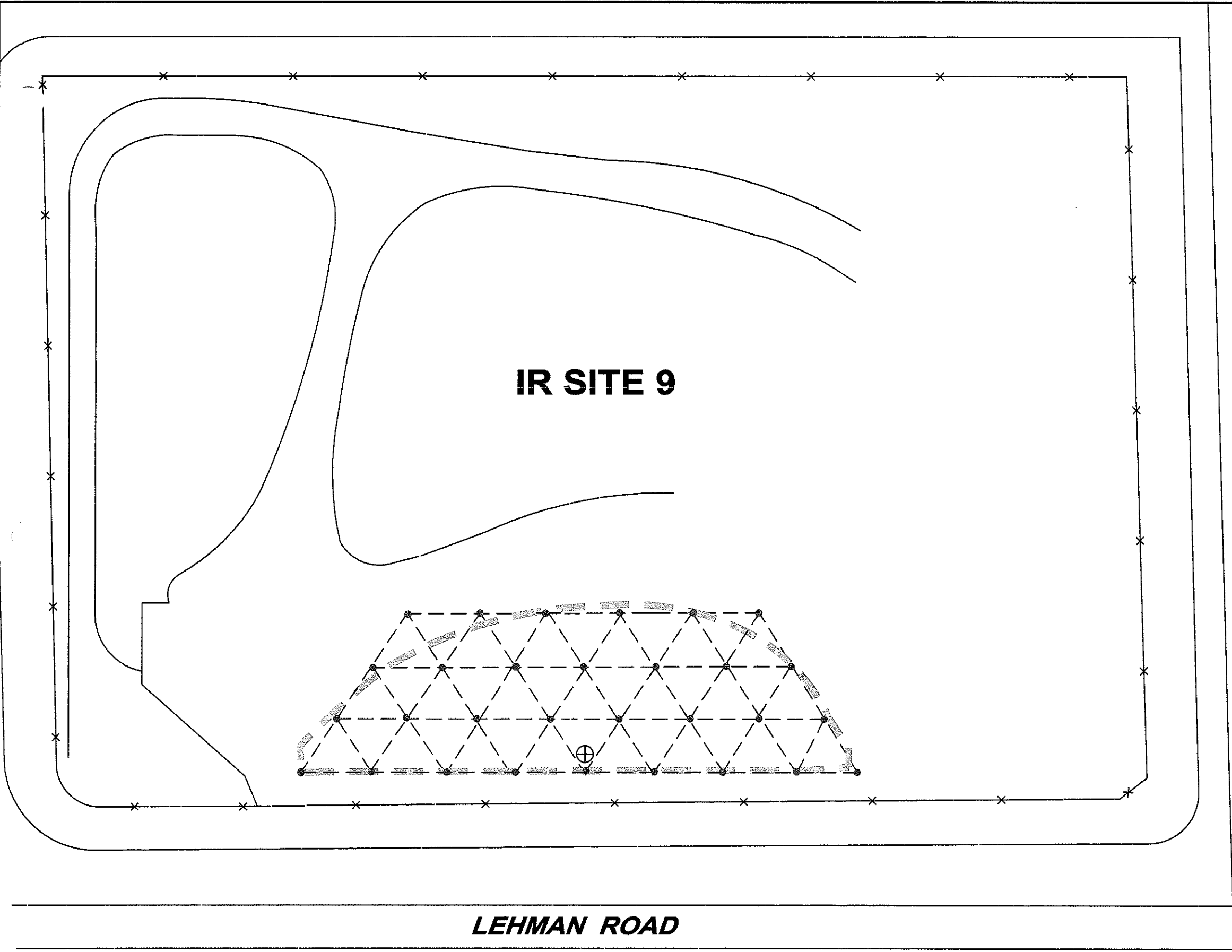


FIGURE 5
SITE 9 PROJECT SCHEDULE
NBVC CBC Port Hueneme, CA

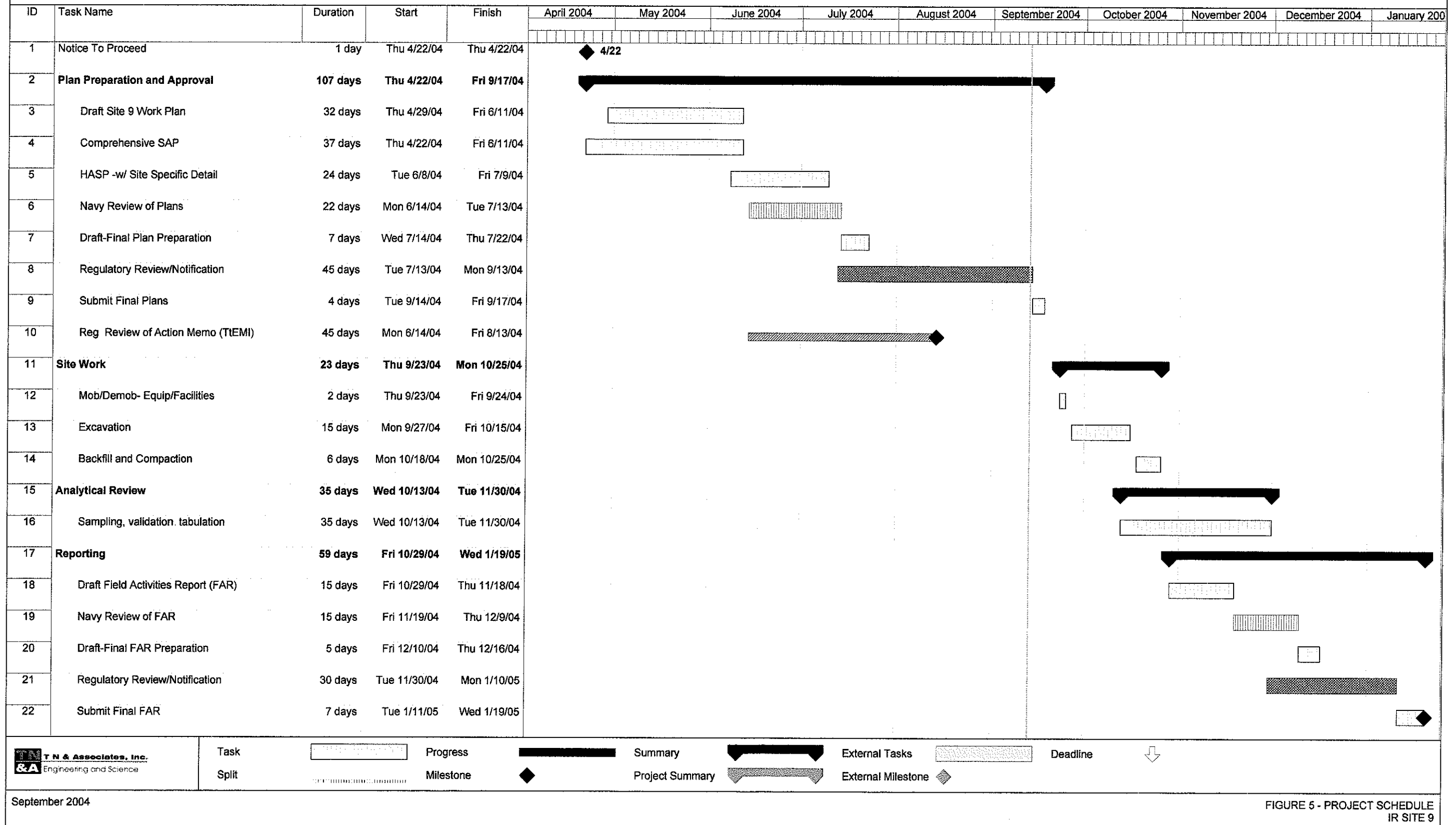


FIGURE 5 - PROJECT SCHEDULE
IR SITE 9